

A Survey of Wireless Charging System for Electric Vehicles and Fire Protection

Anand Desai, Shrinivas Talawar, Sachin Naik, Dr. Anand H Unnibhavi

Department of Electronics and Communication Engineering
Basaveshwar Engineering College, Bagalkote, Karnataka, India
ananddesai38618@gmail.com, shrinivashere@gmail.com
sachinreddy5654@gmail.com, anandhu.rampur@gmail.com

Abstract: *Wireless charging for electric vehicles offers convenient power replenishment without physical connections. Fire protection measures are integral to ensure safety during wireless charging, mitigating potential risks of overheating or electrical malfunctions. The integration of wireless charging systems for electric vehicles (evs) alongside effective fire protection measures presents a promising avenue towards enhancing the sustainability and safety of urban transportation. In this survey work, we meticulously examine the state-of-the-art advancements, methodologies, and challenges pertaining to the fusion of wireless charging technologies with robust fire protection mechanisms for evs. In this survey encapsulates a synthesis of methodologies, technical architectures, and regulatory frameworks, providing researchers and practitioners with valuable insights to navigate the intricate landscape of wireless charging systems for evs and fire protection.*

Keywords: Electric Vehicle, wireless power transfer, Dynamic charging method, charging lane, Fire Protection mechanism, sensors.

REFERENCES

- [1]. Published by Rushikesh Peraneand Team from Sanjivani K. B. P. “Wireless Charging Station for Electric Vehicle” from Sanjivani K.B.P. Polytechnic, Kopargaon, Ahmednagar, Maharashtra, India on 1February 2019.
- [2]. Published by MD RAKIB RAIHAN RAZU1 and team “Wireless Charging of EV While Driving” From Department of Electrical and Electronic Engineering, International Islamic University Chittagong, Kumira4318, Chittagong, Bangladesh on Dec 3 2020.
- [3]. Published by, Saeed D. Manshadi Student Member, IEEE, Mohammad E. Khodayar, Member, IEEE, Khaled Abdelghany “Wireless Charging of Electric Vehicles in Electricity and Transportation Networks” from Halit Üsteron 2020.
- [4]. Published by AGANTI MAHESH and team “Inductive Wireless Power Transfer Charging for Electric Vehicles – A Review” from Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, Chennai 603203, India on Dec 3 2022.
- [5]. Published by MD.RAKIB RAIHAN RAZU and team “Wireless Charging of Electric Vehicle While Runtime” from Department of Electrical, Electronic and Systems Engineering, Faculty of Engineering and Built Environment, Universit Kebangsaan Malaysia.
- [6]. Published by SAIDURGA PRASAD K and team “EV BMS WITH CHARGE MONITOR AND FIRE PROTECTION” from Department Of Electrical And Electronics Engineering, VVIET, Mysuru, India.
- [7]. Published by Abinand D and team “WIRELESS CHARGING OF ELECTRIC VEHICLE” from Department of Electronics and Communication Engineering, Sir M. Visvesvaraya Institute of Technology, Bengaluru, India.
- [8]. Published by Ayush Sen and team “Solar Wireless Electric Vehicle Charging” from Department of Electrical Engineering, Swami Keshvanand Institute of Technology, Management & Gramothan, Jaipur.

- [9]. Published by Rakan C. Chabaan and team “Electric Vehicle Wireless Charging System for The Foreign Object Detection with Inducted Coil with Magnetic Field Variation”.
- [10]. Published by Naoui Mohamed and team “A Comprehensive Analysis of Wireless Charging Systems for Electric Vehicles” from Research Unit of Energy Processes Environment and Electrical Systems, National Engineering School of Gabes, University of Gabes, Gabes 6029, Tunisia.
- [11]. Published by Rushikesh S. Perane, Shreyas A. Wadane, Vedant V. Patil, Vijay M. Salunke, Prof. G. S. Changan Sanjivani K.B.P “Wireless Charging Station for Electric Vehicle” from Kopargaon, Ahmednagar, Maharashtra, India.
- [12]. Published by Bharatiraja Chokkalingam and team “Inductive Wireless Power Transfer Charging for Electric Vehicles” from Department of Electrical and Electronics Engineering, SRM Institute of Science and Technology, Chennai 603203, India.
- [13]. Published by MANUELE Yeddu, B. Loveswara Rao “ Application of Solid State Transformer in Wireless charging system of EV and voltage profile enhancement by using AI techniques” from Department of Electrical and Electronics Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram, AP, India, on07,Aug2023.
- [14]. Published by Dinakar Yeddu, B. Loveswara Rao “ Application of Solid State Transformer in Wireless charging system of EV and voltage profile enhancement by using AI techniques” from Department of Electrical and Electronics Engineering, Koneru Lakshmaiah Education Foundation, Vaddeswaram AP, India, on 07, Aug 2023.
- [15]. Published by Peiyi Sun and team “A Review of Battery Fires in Electric Vehicles” from Department of Fire Research, RISE Research Institutes of Sweden, Borås, Sweden Chinese Academy of Sciences, Guangzhou, Guangdong, China.
- [16]. Published by P.M.W. Salehen and team “Development of battery management systems (BMS) for electric vehicles (EVs)” from Department of Mechanical Engineering, Faculty of Engineering Universiti Kebangsaan Malaysia.
- [17]. Published by Rick and team “Fast Charging Systems for Passenger Electric Vehicles” from Department of Urban Technology, Amsterdam University of Applied Sciences, Netherlands.
- [18]. Published by L. Barelli and team “Electric vehicles fire protection during charge operation through Vanadium-air flow battery technology” from Department of Engineering, University of Perugia, Via G. Duranti 93, Perugia 06125, Italy.
- [19]. Published by Dr. T V V Pavan kumar and team “EV BMS With Temperature and Fire Protection” from Electrical and Electronics Engineering, KG Reddy College of Engineering & Technology, Hyderabad, India.
- [20]. Published by Y. Mastanamma and team “EV BMS With Charge Monitor and Fire Detection” Department of Electrical and Electronics Engineering, Methodist College of Engineering and Technology, Abids, Hyderabad, Telangana, India on 2023.